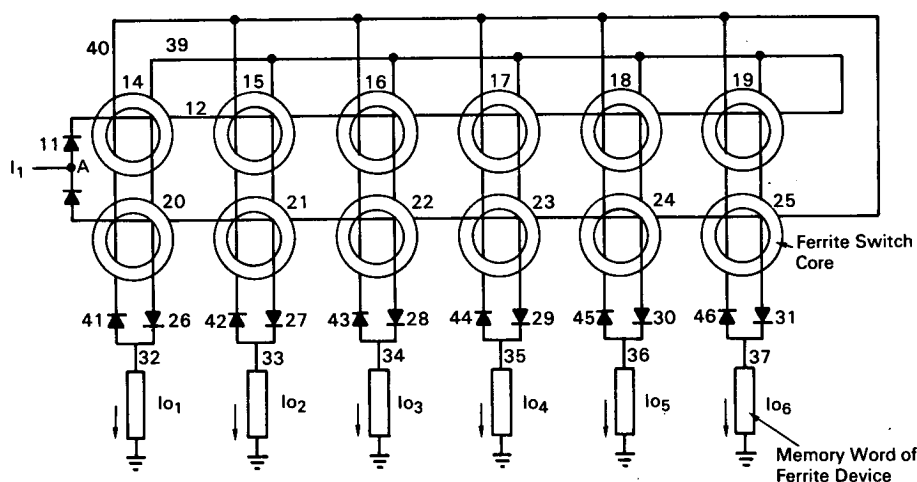


NASA TECH BRIEF

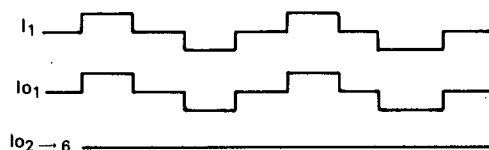


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Computer Memory Access Technique



IMPROVED COMMUTATOR



TIMING & PULSE DIAGRAM

A computer memory access commutator is associated with a core memory for storing or reading binary data whereby a wire may be deleted from each row and/or column in a typical 4-wire memory. This access commutator and steering gate configuration produces bipolar current pulses while still employing only the diodes and magnetic cores of the classic commutator, thereby appreciably reducing the complexity of the memory assembly.

Current I_1 is applied at a time when it is a positive-going current pulse at point A. Current flows through diode 11 and through wire 12 threaded through cores 14 through 19. The current I_1 attempts to switch

core 14 into a reset state. As core 14 switches, it generates a voltage on wire 39 which forward biases diode 26. This forward bias permits the current I_1 to be steered through core 20, diode 26, wire 32, and the memory word I_{01} (positive direction).

As core 14 switches from set to reset in the above description, the current I_1 sets core 20. The developed voltage on core 14 then back biases diodes 27, 28, 29, 30, and 31 at the common node which terminates in wire 39.

The developed voltage (positive) on the cathode of diode 26 forward biases diode 41. The voltage at the cathode of diode 41 is positive; it back biases diodes

(continued overleaf)

42, 43, 44, 45, and 46 through common node termination wire 40.

As I_1 flows through diode 26, it becomes I_{O1} .

At a later time I_1 may be a negative current pulse. All functions are the same as in the analysis for the positive pulse with the identification of active elements exchanged with the inactive elements at like stages; e.g., I_{O1+} , I_{O1-} ; diodes 26, 41; wires 39, 40; diodes 27, 42; cores 14, 20.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
NASA Pasadena Office
4800 Oak Grove Drive
Pasadena, California 91103
Reference: B67-10585

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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